


Appendix 8 – Additional fieldwork conducted on the snowshoe hare pellet transects to describe the vegetative characteristics associated with hare habitat occupancy

Field observations suggested that some additional vegetation variables might help explain hare habitat use. For example, it appeared that woody debris might contribute an important cover component to hare habitat where cover by vegetation was lower. In 2001, data on cover by woody debris and specific vegetation was collected for 26 Loomis transects. Methodology and data summaries are provided here for hypothesis formation and potential guidance for future study.

Methods

Woody debris (by species) and vegetative cover were measured along a 150 feet (50 m) sampling transect at stations 2, 4, 7, and 9. The cover sampling transect was placed at a random angle and the slope of the transect was recorded. Small diameter debris (1-2.9 inches or 2.5-7.5 cm) was tallied if it intersected the transect between 0-3 feet (0-1m) along the length of the transect. Heights were noted for the first three pieces encountered. Debris 3 inches (8 cm) or larger was tallied along the entire length of the transect (0-50m). Details noted for each piece where it intersected the transect included: 1) whether the piece was rotten or sound, 2) species, 3) height, 4) diameter, and 5) whether the piece was elevated from the ground. When pieces were rotten, original diameters were estimated. Relationships between pellets and woody debris cover were investigated through correlations by tallying pieces by size class, averaging heights and diameters, and considering the decay class of wood.

For vegetative cover, the species of vegetation directly intercepting the transect was noted along the distance of the transect from 0-6 feet (0 to 2 m) above the ground. In many cases, multiple species overlapped as layers in the forest understory. The average height (up to 2m) and distance covered were noted for each occurrence of species of vegetation. Relationships between pellets and vegetative cover were investigated by summarizing the total cover by species or groups of species and averaging heights.

Correlations and one-way ANOVAs were used to explore relationships between pellets and vegetation cover. Probabilities were not adjusted for multiple correlations because of the exploratory nature of this analysis, designed to guide future hypotheses and research questions.

Results

The only woody debris characteristic that was different between pellet categories was the mean height of non-elevated wood (Table A8.1). Comparing sites with low to high horizontal cover, it appeared that pellets on sites with low cover were most highly correlated with the height of 1-3 inches (2.5-7.5 cm) material on site and negative to the diameter of non-elevated woody debris (Table A8.2). On sites with high cover, pellets were most highly correlated with the mean diameter of larger woody debris on site, especially that which was non-elevated. The strongest negative correlation observed was between pellets and the height of non-elevated wood. There were no significant relationships between vegetative cover and pellets.

Table A8.1
One-way ANOVA results for woody debris characteristics (tree data)
between pellet categories (f=few, s=some, m=many).

Post-hoc test results reported when $p \leq 0.05$ ($n=26$).

Variable	Mean Pellet Category		
	F _(2, 23)	p	post-hoc
Mean height of non-elevated wood	5.037	0.015	s>f<m
Mean height of elevated wood	1.285	0.296	_____
Mean diameter of wood 3" or greater	0.603	0.556	_____
Diameter of non-elevated wood	0.975	0.392	_____
Diameter of elevated wood	0.769	0.475	_____
Tally of 1-3" wood	0.283	0.756	_____
Mean height of 1-3" wood	1.058	0.363	_____
Number of non-elevated wood	0.281	0.758	_____
Number of elevated wood	1.733	0.199	_____
Number of rotten 3" or greater	1.440	0.258	_____
Number of sound 3" or greater	2.335	0.121	_____

Table A8.2. Correlation coefficients between pellets and woody debris for sites with relatively low (n=13) and high (n=11) horizontal cover.

Woody Debris Characteristic	Pearson's R- low cover	Woody Debris Characteristic	Pearson's R- high cover
Mean diameter of elevated wood	-0.555	Mean height of non-elevated wood	-0.675
Mean diameter of sound 3" or greater	-0.444	Number of sound 3" or greater	-0.269
Mean height of non-elevated wood	-0.404	Number of elevated wood	-0.183
Mean height of elevated wood	-0.289	Tally of 1-3" wood	-0.12
Number of sound 3" or greater	-0.091	Mean height of elevated wood	-0.061
Number of non-elevated wood	-0.089	Height of 1-3" wood	-0.049
Tally of 1-3" wood	-0.002	Number of rotten 3" or greater	0.063
Number of elevated wood	0.232	Diameter of elevated wood	0.543
Number of rotten 3" or greater	0.321	Mean diameter of sound 3" or greater	0.777
Height of 1-3" wood	0.608	Diameter of non-elevated wood	0.789

Table A8.3. One-way ANOVA results for vegetation cover characteristics between pellet categories.

Variable	Mean Pellet Category	
	F _(2, 23)	p
Mean height 1	0.139	0.871
Mean height 2	0.047	0.954
Mean height 3	1.075	0.358
Conifer cover	0.661	0.526
Herb cover	1.160	0.331
Grass cover	0.610	0.552
Low shrub cover	0.326	0.726
Tall shrub cover	1.609	0.231
ABLA cover	1.036	0.371
CARU cover	0.570	0.574
LIBOL cover	0.917	0.414
Lupine cover	0.859	0.437
PAMY cover	0.363	0.700
PIEN cover	1.599	0.224
PSME cover	0.305	0.740
<i>Vaccinium</i> cover	0.432	0.654

